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**Notes on Mexican Herpetofauna 19:
Herpetofauna Sympatric with *Gerrhonotus parvus*
in San Isidro Canyon, Santiago, Nuevo León, Mexico**

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Abstract

Gerrhonotus parvus is a species endemic to the state Nuevo León, presently known from only three localities in the Sierra Madre Oriental, one of which is San Isidro Canyon, located in the municipality of Santiago, where they have been frequently reported. The objective of this research was to investigate the herpetological species richness that coexists with *Gerrhonotus parvus*. We conducted a literature review that documented the herpetofaunal species in the municipality of Santiago, Nuevo León, together with several visits to the sites beginning in 1999 by personnel of the Herpetological Laboratory, Facultad de Ciencias Biológicas /UANL and a few North American herpetologists. We obtained a total of 43 species. It is worth mentioning that even though it is a relatively small area, it presents a high diversity in comparison with the rest of the state.

Resumen

Gerrhonotus parvus es una especie endémica del estado de Nuevo León, se conoce únicamente en tres localidades de la Sierra Madre Oriental, el cañón de San Isidro en Santiago Nuevo León es el área de donde se han reportado más ejemplares. La intención de este trabajo es dar a conocer la riqueza de especies de anfibios y reptiles que coexisten con *Gerrhonotus parvus* en esta zona, se realizó una revisión de literatura sobre trabajos realizados con la herpetofauna en el municipio de Santiago Nuevo León, así como de las visitas que se han realizado desde el año de 1999 por parte del personal del Laboratorio de Herpetología, Facultad de Ciencias Biológicas/UANL y muchos herpetólogos North Americanos. Esto nos llevó a un total de 43 especies. Cabe mencionar que a pesar de ser un área relativamente pequeña, presenta una alta diversidad en comparación con el resto del estado.

Introduction

The family Anguidae comprises four subfamilies: Anguinae, Anniellinae, Diploglossinae and Gerrhonotinae. Its distribution is irregular in Europe; anguids also inhabit southern Asia and the Americas. This family is characterized by the presence of large body scales with minimal overlap. In addition there is a presence of adjacent osteoderms on the dorsal and ventral section that in most of the anguids are separated by a well defined deep granular ventrolateral fold. Two genera of the subfamily Anguinae and the members of Anniellinae lack limbs. In Gerrhonotinae and Diploglossinae the bodies are elongated and the limbs are reduced (Pianka and Vitt, 2003; Zug et al., 2001).

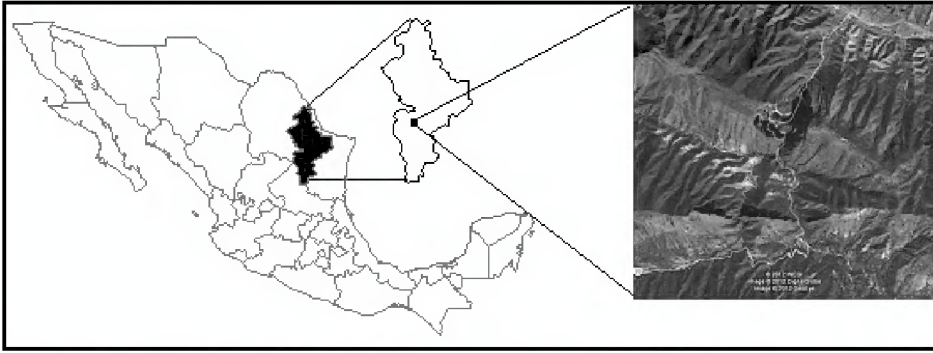
Anguids in Mexico are very diverse and include *Anniella* (2 species), *Barisia* (7 species), *Diploglossus* (3 species), *Elgaria* (7 species), *Gerrhonotus* (6 species, with a new species recently described by Bryson and Graham [2010]), *Mesaspis* (5 species), *Ophisaurus* (2 species) in the checklist of Liner and Casas-Andreu (2008). Many of these Mexican anguids are ecologically poorly known. In Nuevo León there are three species: *Barisia ciliaris*, *Gerrhonotus infernalis* and *Gerrhonotus parvus*. At some Nuevo León localities all three are sympatric, including

San Isidro Canyon in the municipality of Santiago.

This group of species exhibits two foraging modes: active foraging (Vitt and Pianka, 1994), and “ambush,” “sit-and-wait” or “passive foraging” (waiting for prey to come close—within the visual field) (Pianka, 1966; Vitt and Price, 1982). Anguids are often characterized as active foragers, even though the behavior has been documented from only a few species of this family (Bryson et al., 2003; Vitt and Congdon, 1978). We are actively studying anguid behavior in the field and laboratory.

Study Site

The Sierra Madre Oriental is a mountain range which contains numerous valleys and mountains that present widely varying climatic conditions as well as vegetation types. San Isidro Canyon is located in what is known as the Curvature of Monterrey within the Protected Natural Area known as Parque Cumbres de Monterrey, Nuevo León, in the municipality of Santiago. This canyon is located southwest of the municipality and is contiguous to the south with the state of Coahuila. The canyon is approximately 2 km in length, at an elevation of 1600 m with numerous rock walls that are about 400 m in height. It is consti-



Study site area: San Isidro Canyon, Santiago, Nuevo León, Mexico.

tuted of limestone, and the walls have elements of desert *rosetófila* vegetation: *Agave lecheguilla* (lechuguilla), *Agave bracteosa* (squid agave), and *Dasyliirium* sp. (sotol). The canyon floor mainly contains submontane elements such as: *Helietta parvifolia* (barreta), *Chilopsis linearis* (desert willow), *Cercis canadensis* (eastern redbud), *Gochnatia hypoleuca* (shrubby bullseye), *Acacia rigidula* (blackbrush acacia), *Acacia farnesiana* (sweet acacia), *Acacia berlandieri* (Berlandier's acacia) and several oak species *Quercus* sp.. There is a gallery forest with a distinguishing element, *Platanus occidentalis* (American sycamore), throughout the canyon. There is almost always water flowing, but in the dry season the water flow may be intermittent. In branch canyons small pools may form. We have found several of our specimens, including a neonate, in these branch canyons.

Materials and Methods

The list of herpetofauna sympatric with *Gerrhonotus parvus* was based on literature records for the municipality of Santiago, Nuevo León, as well as visits to the area. Since 1999 the authors, from the Laboratory of Herpetology of the Faculty of Biological Sciences of the UANL, and other herpetologists, mainly North American, have visited the canyon about four or five times per year, monitoring species of the area. It is illegal to collect animals in the canyon without a scientific permit issued by our Mexican federal authorities.

Results

During these field trips we found several pygmy alligator lizards. They were found under dead plant matter and in crevices

or active on the canyon floor close to the walls.

A small number of publications (13) were found that deal with the herpetofauna of the area:

- Treviño (1978) studied the distribution of herpetofauna in southern Nuevo León and reported several species present in San Isidro Canyon, although he did not collect in the canyon itself, but in nearby areas. The information is part of his bachelor's thesis.
- Bezy (1984) carried out a study on the systematics of the genus *Lepidophyma* in the northeast of Mexico, in which he reports various specimens for the municipality of Santiago, one in the area of Presa la Boca, (one of the superficial water supplies for the Monterrey metropolitan area), the others from Las Adjuntas in Parque Nacional Cumbres de Monterrey, approximately 19 km in a straight line from San Isidro Canyon.
- Smith (1986) proposed a taxonomic change of *Gerrhonotus parvus* to *Elgaria parva* based on similarity of the scalation of the head with this genus.
- Benavides-Ruiz (1987) compiled a list of the herpetofauna of the southern part of the municipality of Santiago. From one of her localities near the Sierra of San Isidro, she reports species also present in San Isidro Canyon. She did not find *Gerrhonotus parvus*. The information is part of her bachelor's thesis.
- Wiens et al. (1999) reviewed the taxonomic status of populations of the *Sceloporus jarrovi* complex and assigned the populations from northeastern Mexico to two species, *Sceloporus minor* and *Sceloporus oregon*. Using some specimens from Laguna de Sanchez and San Isidro, they assigned *Sceloporus oregon* to the area.
- Banda-Leal (2002) conducted a herpetofaunal study of Parque Ecológico de Chipinque in which he reports most of the species known from San Isidro Canyon, with exception of *Gerrhonotus parvus*. The information is part of his bachelor's thesis.
- Banda-Leal et al. (2002) documented a new locality for *Gerrhonotus parvus* (as *Elgaria parva*) in San Isidro Canyon. They discussed the morphology and taxonomic rank of the species and provided a description of the habitat that differs



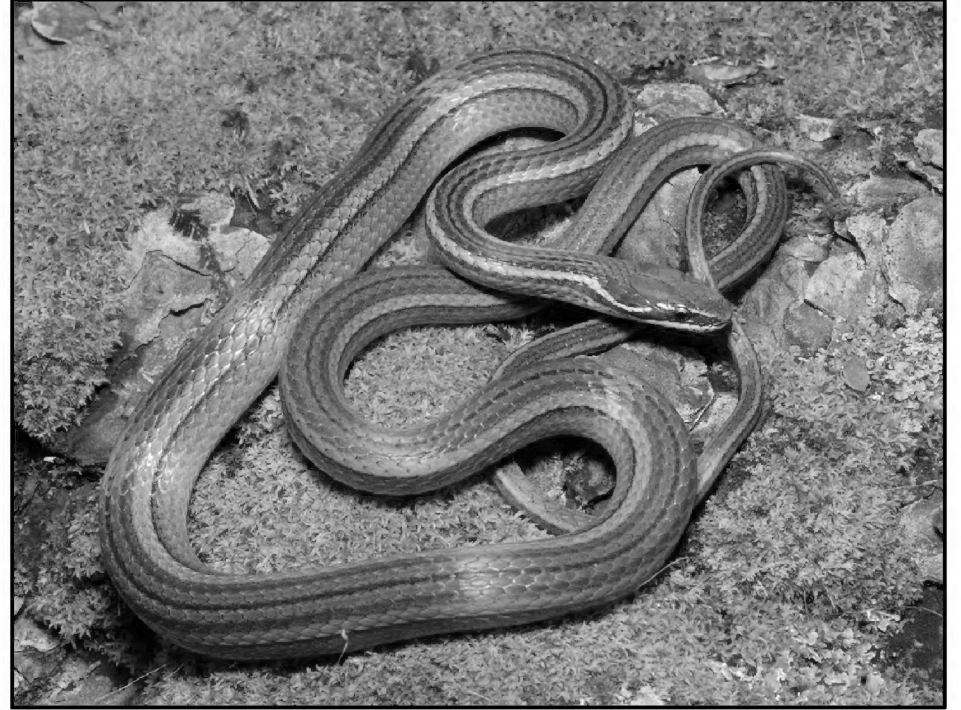
Floor of the one of the branch canyons. Photograph by Javier Banda-Leal.



Pools of water sometimes form in the branch canyons. Photograph by Javier Banda-Leal.



A red-spotted toad, *Anaxyrus punctatus* from one of the branch canyons. Photograph by Javier Banda-Leal.



A Nuevo León graceful brownsnake, *Rhadinea montana*, from the canyon. Photograph by Robert Hansen.



A marked male pygmy alligator lizard, *Gerrhonotus parvus*, from one of the branch canyons. Photograph by Javier Banda-Leal.



A male Couch's spiny lizard, *Sceloporus couchii*. Photograph by Javier Banda-Leal.



A male black-tailed rattlesnake, *Crotalus cf. molossus*, from one of the branch canyons. Photograph by Javier Banda-Leal.



A juvenile *Sceloporus oregon*. Photograph by Javier Banda-Leal.

significantly from the type locality in Galeana, Nuevo León. San Isidro is a limestone canyon at an elevation of 1600 m. The specimen was found on the floor of the canyon beside a wall, with decomposing organic matter as a substrate.

- Bryson et al. (2003) documented several natural history aspects of *Gerrhonotus parvus* at the type locality and at San Isidro Canyon, along with some sympatric herpetological species in both areas.
- Banda et al. (2005) documented the largest known specimen of *Gerrhonotus parvus*, which was from San Isidro Canyon. The specimen, which had a complete tail, measured 76.5 mm in total length, exceeding the next largest known by 4.4 mm. This large specimen was found in the month of May at the base of a branch canyon, at a time when the branch canyon was flooded. The specimen unfortunately had died, apparently drowned. Lizards in the branch canyons are at risk due to flooding and the formation of deep ponds. Before this a paratype from Galeana was the largest specimen reported (Knight and Scudday, 1985). It was maintained in captivity for about 5 years and was deposited in the collection at the Sull Ross University.
- Conroy et al. (2005) used Bayesian analysis of DNA sequences to determine the phylogenetic position of *Elgaria parva*, locating it as the sister species to *Gerrhonotus infernalis*. Thus, they proposed placing it in the genus *Gerrhonotus* (rather than *Elgaria* as originally described by Knight and Scudday [1985]).
- Lazcano and Bryson (2010) registered a young *Gerrhonotus parvus* for the first time, from San Isidro Canyon. The specimen described had a complete tail and its coloration was very different from the adults, consisting of sharply defined dark bands. Although the adults also have bands, they are not so dark and do not contrast sharply with the ground color. The young are very different from those of the sympatric *Gerrhonotus infernalis*, which are very similar to adults of the species.
- Dixon et al. (2011) reviewed three species of *Rhadinaea* found in the Sierra Madre Oriental of Mexico, including specimens of *Rhadinaea montana* from the mountains of Santiago, Nuevo León, and San Isidro Canyon, sympatric with *Gerrhonotus parvus*.
- Narváez-Torres (2012) conducted a study of the herpetofaunal composition of the natural protected area Parque Nacional Cumbres de Monterrey which included San Isidro Canyon. He did not find the endemic species *Gerrhonotus parvus*.

We have found a number of species sympatric to the pygmy alligator lizard in San Isidro Canyon: *Anaxyrus punctatus* (red-spotted toad); *Ollotis nebulifer* (Gulf Coast toad); *Eleutherodactylus cystignathoides campi* (Rio Grande chirping frog); *Eleutherodactylus longipes* (long-footed chirping frog); *Ecnomihyla mitotympanum* (small-eared treefrog); *Smilisca baudinii* (Mexican treefrog); *Scaphiopus couchii* (Couch's spadefoot); *Gerrhonotus infernalis* (Texas alligator lizard) which has a wide distribution in Texas and northern Mexico; *Sceloporus couchii* (Couch's spiny lizard); *Sceloporus grammicus disparilis* (northeastern graphic lizard); *Sceloporus oregon* (royal lesser minor lizard); *Sceloporus parvus* (northern blue-bellied lizard); *Sceloporus torquatus binocularis* (Nuevo León torquate lizard); *Plestiodon brevirostris pineus* (pine woods short-nosed skink);

Scincella silvicola caudaequinae (Horsetail Falls ground skink); *Aspidocelis scalaris gularis* (Texas spotted whiptail); *Coluber constrictor oaxaca* (Mexican racer); *Coluber schotti ruthveni* (Ruthven's whipsnake); *Coluber flagellum testaceus* (western coachwhip); *Lampropeltis mexicana mexicana* (San Luis Potosí kingsnake); *Pantherophis bairdi* (Baird's ratsnake); *Pituophis deppei jani* (northern Mexican pinesnake); *Rhinocheilus lecontei* (long-nosed snake); *Rhadinaea montana* (Nuevo León graceful brown snake); *Salvadora grahamiae lineata* (Texas patch-nosed snake); *Thamnophis proximus diabolicus* (arid land ribbonsnake); *Crotalus atrox* (western diamondback rattlesnake); *Crotalus cf. molossus* (black-tailed rattlesnake) and *Crotalus lepidus lepidus* (mottled rock rattlesnake).

Collected specimens were identified using criteria established by Smith and Taylor (1945, 1948, 1950), Conant and Collins (1998), and the *Catalogue of American Reptiles and Amphibians*. The phrynosomatids we collected were identified using keys for species from Nuevo León and Tamaulipas constructed by Hobart Smith. Scientific and common names were updated using Liner and Casas-Andreu (2008).

Discussion and Conclusions

The herpetological richness of the state of Nuevo León accounts for a total of ~136 species (110 reptiles and 26 amphibians). The 44 species (37 reptiles and 7 amphibians) on our list for San Isidro Canyon (see Table 1) represent 32.35% of the total herpetofauna of the state.

Some of these species on the list are potential predators of *Gerrhonotus parvus*. For example, we found a rock rattlesnake that had predated a juvenile *Sceloporus oregon* on the road in San Isidro Canyon toward Laguna de Sanchez (Lazcano et al., 2004). And as *Gerrhonotus infernalis* is a sympatric species and very aggressive it could easily predate the much smaller *G. parvus*.

With more field trips the herpetological list could grow easily. This is an excellent place to do continual monitoring of amphibians and reptiles. At the moment we have a doctoral degree thesis project underway on the ecology and phylogeny of the species in the canyon.

Alamo Canyon, a parallel canyon to San Isidro, has not been explored herpetologically. Access to Alamo Canyon is by dirt road, not paved like San Isidro. No doubt *Gerrhonotus parvus* and many of the sympatric species are there.

Acknowledgments

We would like to thank the multiple national and international institutions that supplied their collection data for this specific area, allowing us to update the herpetofauna for the Sierras of Nuevo León; the Universidad Autónoma de Nuevo León, for financial support of this study; the SEMARNAT for issuing collecting permits and providing the most recent ones: Oficio Num. SGPA/DGVS/0511/12 and Oficio Num. SGPA/DGVS/07101/12. We would also like to thank all the persons who participated in lab and field work, in particular Dr. James R. Dixon, Dr. Robert W. Bryson, Jr., and Dr. Robert L. Bezy for going over the manuscript and the authorities of Parque Nacional Cumbres de Monterrey.

Table 1. Amphibian and reptile species from the area of San Isidro Canyon, based on literature reports and specimens in preserved collections. Status = protection status in the Mexican NOM-059-SEMARNAT-2010: A = *Amenazada* (Threatened); Pr = *Protección Especial* (Special Protection); SE = *Sin Estatus* (No Status). Observed = species seen during the course of this study. Common and scientific names follow Liner and Casas-Andreu (2008).

Taxon	Common Name	Status	Observed
Amphibia: Anura			
Family Bufonidae			
(1) <i>Anaxyrus punctatus</i> (Baird and Girard, 1852)	Red-spotted Toad	SE	X
(2) <i>Ollotis nebulifer</i> (Girard, 1854)	Gulf Coast Toad	SE	X
Family Eleutherodactylidae			
(3) <i>Eleutherodactylus cystignathoides campi</i> (Stejneger, 1915)	Spotted Chirping Frog	SE	X
(4) <i>Eleutherodactylus longipes</i> (Baird, in Emory, 1869)	Long-footed Chirping Frog	SE	X
Family Hylidae			
(5) <i>Ecnomiohyla miotympanum</i> (Cope, 1863)	Small-eared Treefrog	SE	X
(6) <i>Smilisca baudinii</i> (A. M. C. Duméril and Bibron, 1841)	Mexican Treefrog	SE	X
Family Scaphiopodidae			
(7) <i>Scaphiopus couchii</i> Baird, 1854	Couch's Spadefoot	SE	X
Reptilia: Squamata—Lizards			
Family Anguidae			
(8) <i>Barisia ciliaris</i> (H. M. Smith, 1942)	Northern Alligator Lizard	Pr	X
(9) <i>Gerrhonotus infernalis</i> Baird, 1859 (1858)	Texas Alligator Lizard	SE	X
(10) <i>Gerrhonotus parvus</i> Knight and Scudday, 1985	Pigmy Alligator Lizard	Pr	X
Family Phrynosomatidae			
(11) <i>Sceloporus couchii</i> Baird, 1859 (1858)	Couch's Spiny Lizard	SE	X
(12) <i>Sceloporus grammicus disparilis</i> Stejneger, 1916	Northeastern Graphic Lizard	Pr	X
(13) <i>Sceloporus oregon</i> H. M. Smith and B. C. Brown, 1941	Royal Lesser Minor Lizard	SE	X
(14) <i>Sceloporus parvus</i> H. M. Smith, 1934	Northern Blue-bellied Lizard	SE	X
(15) <i>Sceloporus torquatus binocularis</i> Dunn, 1936	Nuevo Leon Torquate Lizard	SE	X
Family Scincidae			
(16) <i>Plestiodon brevirostris pineus</i> (R. W. Axtell, 1960)	Pine Woods Short-nose Skink	SE	X
(17) <i>Scincella silvicola caudaequinae</i> (H. M. Smith, 1950)	Horsetail Falls Ground Skink	A	X
Family Teiidae			
(18) <i>Aspidocelis scalaris gularis</i> (Baird and Girard, 1852)	Texas Spotted Whiptail	SE	X
Family Xantusiidae			
(19) <i>Lepidophyma sylvaticum</i> E. H. Taylor, 1939	Madrean Tropical Night Lizard	Pr	
Reptilia: Squamata—Snakes			
Family Colubridae			
(20) <i>Coluber constrictor oaxaca</i> (Jan, 1863)	Mexican Racer	A	X
(21) <i>Coluber flagellum testaceus</i> Say, in James, 1823	Western Coachwhip	A	X
(22) <i>Coluber schotti ruthveni</i> (Ortenburger, 1923)	Ruthven's Whipsnake	SE	X
(23) <i>Drymarchon melanurus erebennus</i> (Cope, 1860)	Texas Indigo Snake	SE	
(24) <i>Drymobius margaritiferus margaritiferus</i> (Schlegel, 1837)	Northern Speckled Racer	SE	
(25) <i>Hypsiglena jani texana</i> Stejneger, 1893	Texas Nightsnake	Pr	
(26) <i>Lampropeltis mexicana mexicana</i> (Garman, 1884 [1883])	San Luis Potosí Kingsnake	A	X
(27) <i>Leptodeira septentrionalis</i> (Kennicott, in Baird, 1859)	Northern Cat-eyed Snake	SE	
(28) <i>Opheodrys aestivus majalis</i> (Baird and Girard, 1853)	Western Rough Greensnake	SE	
(29) <i>Pantherophis bairdi</i> (Yarrow, in Cope, 1880)	Baird's Ratsnake	SE	X
(30) <i>Pituophis deppei jani</i> (Cope, 1861 [1860])	Northern Mexican Pinesnake	A	X
(31) <i>Rhadinaea montana</i> H. M. Smith, 1944	Nuevo Leon Graceful Brown Snake	Pr	X
(32) <i>Rhinocheilus lecontei</i> Baird and Girard, 1853	Long-nosed Snake	SE	X

Table 1 (cont'd).

Taxon	Common Name	Status	Observed
(33) <i>Salvadora grahamiae lineata</i> Schmidt, 1940	Texas Patch-nosed Snake	SE	X
(34) <i>Senticolis triaspis intermedia</i> (Boettger, 1883)	Northern Green Ratsnake	SE	
(35) <i>Storeria hidalgoensis</i> E. H. Taylor, 1942	Mexican Yellow-bellied Brownsnake	SE	
(36) <i>Tantilla rubra</i> Cope, 1876 (1875)	Red Black-headed Snake	Pr	
(37) <i>Thamnophis cyrtopsis cyrtopsis</i> (Kennicott, 1860)	Western Black-necked Gartersnake	SE	
(38) <i>Thamnophis proximus diabolicus</i> Rossman, 1963	Arid Land Ribbonsnake	A	X
(39) <i>Trimorphodon tau tau</i> Cope, 1870	Mexican Lyresnake	SE	
(40) <i>Tropidodipsas sartorii sartorii</i> Cope, 1863	Sartori's Snail Sucker	Pr	
Family Crotalidae			
(41) <i>Crotalus atrox</i> Baird and Girard, 1853	Western Diamondback Rattlesnake	Pr	X
(42) <i>Crotalus lepidus lepidus</i> (Kennicott, 1861)	Mottled Rock Rattlesnake	Pr	X
(43) <i>Crotalus cf. molossus</i>	Black-tailed Rattlesnake	Pr	X
Family Elapidae			
(44) <i>Micrurus tener</i> (Baird and Girard, 1853)	Texas Coral Snake	Pr	

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The Measure of Experience

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Growing up as snake lovers some decades ago, we and our fellow snake fanatics knew who the experts were. They were the few people with whom we had any sort of contact who had experience. Now this was not a large number of people. Even counting the authors of the few reptile books that we managed to find in the library, there weren't many experts.

"Experience" to us meant access to snakes. You couldn't get experience if you didn't have snakes. But it wasn't easy to get snakes back then. Even local snakes were a challenge to acquire. There were no publications in our local libraries that detailed how to collect snakes.

Of course, in those days, as in many places today, the local people were convinced that snakes were everywhere. When asked, they would just sort of point to the brushiest spot and wave a hand and declare that "right over there is full of them!" Sadly, we never found that place to which they referred.

Not that many years ago, the pursuit of a snake hobby was a rather isolating lifestyle. In some extreme cases it actually produced hermits, people whose greatest fear was that their neighbors might find out what was in their basement. That wasn't because snake keeping was an illegal hobby back then. There were few city ordinances that specified forbidden sizes or species within municipal boundaries. No, the reason was that snake keepers didn't want everyone in the neighborhood to think they were odd.

It was lonely back then for most of us.

There were no color glossy magazines. There was no classified advertising for reptiles. Most of us growing up in small-town America didn't have access to, much less membership in, regional herpetological societies. There were no weekend snake sales. There were precious few books, and there were hardly any pictures in the few books that we could find in public libraries. It was rare that any pet store would have a snake on display. We couldn't have even imagined the possibility that someday there would be an Internet with reptile sites that pulled in tens of thousands of visitors every month.

This wasn't very long ago.

Of course, back then there existed many wholesale animal businesses that annually imported hundreds of thousands of snakes, other reptiles, mammals, and birds into the U.S. Most of these importers were in Florida, although they existed also in New York and Philadelphia, Texas and California. But these businesses mostly supplied the pet stores in the largest cities, and very few imports trickled out to the mom-and-pop pet shops in Middle America. These reptile wholesalers mailed out monthly price lists featuring items like "boa constrictors at \$4.00/foot" or "horny toads for \$0.60 each." But we never even suspected they existed because what also existed then were *secrets*.

As hard as this may be to believe, snake people actually kept

snake secrets from other snake people. When we were starting out, the few herpers we knew and the few pet stores we haunted would never have considered giving us access to the names and addresses of reptile importers or wholesale businesses. For that matter, most snake keepers wouldn't divulge the maintenance and breeding secrets that they had independently discovered. There were lots of secrets that we the underlings would have to strive to uncover for ourselves.

Today, however, secrets are hard to keep, the snake business has changed, and most keepers have easy access to an incredible variety of snakes.

Now, entering the second decade of the 21st century, an overwhelming amount of information about reptiles is published and readily available. Young keepers can't comprehend what a recent turn of events this is. There are now so many books, magazines, newsletters and websites that it would be nearly impossible to read and absorb all the existing information about snakes. And this is the problem. With so many authors promoted as "experts," how in the world can young keepers know who the real experts are? In whose information should they place their trust?

It's our observation that a new class of "experts" has proliferated, one comprised mostly of well-read, snake-loving people with strong interests and a few snakes. Some of these would-be experts have read and memorized every printed word written about some particular species. They are veritable walking encyclopedias—but with only one or two entries. We have met people who can quote passages from some of the old articles we wrote for *Vivarium* magazine as if they were Scripture.

And, of course, contributing to the creation of this new class of experts is the realization by publishers that snake books sell, and snake magazines sell. There are publishers who comb herpetoculture looking for wanna-be authors, people willing to write on some subject that the market research team at the publishing house has decided will sell. The result has been a flood of publications that, frankly, aren't worth a damn.

Much of what has been written in the past 20 years or so was authored by people with insignificant amounts of experience with the particular animals that were the topics. Then these manuscripts were edited by people with no clue about herpetoculture. They rehash and reinterpret older published information, and all too often they repeat misinformation handed down to us from previous generations who were writing when herpetoculture was so young that it was diapered by Ditmars. Much of what is published on the general topic of herpetoculture today can be described only as poor and not founded in significant experience.

So who are the true experts and how do we identify them? The experts of herpetoculture today are the people with extensive experience with animals, the same as when we were growing up. Herpetoculture is a hands-on activity, not a cerebral exercise. To develop expertise requires time and it requires

hand-on experience. There is no substitute.

For this reason, we propose an actual measure of experience: the “snake-year.” A keeper achieves one snake-year of experience by maintaining one snake for one full year. If a keeper keeps ten snakes for ten years, he or she then has accumulated 100 snake-years of experience. Of course, for lizard people there is the “lizard-year,” and turtle people have “turtle-years.” The snake year is a quantitative measure of experience. It is a means by which a keeper can personally measure his lifetime experience, evaluate the experience of other keepers, and measure the merit of information and advice presented by the tidal wave of pseudoexperts with which we recently have been deluged.

This type of measurement is used by falconers as a gauge of devotion and expertise. For those of you who have not been exposed to falconers, they are the only other group of animal people who just might possibly love their animals with a passion equal to that encountered in the snake world. There are different recognized degrees of falconry based on experience, all the way up to lofty Master Falconer. Different federal falconry permits are required for each level, each granting access to different falcons, hawks, and eagles. For example, a beginning falconer cannot keep a peregrine falcon or gyrfalcon. Perhaps a beginning snake keeper should not keep a reticulated python or spitting cobra.

Of course, it’s possible that someone with a lot of snake-years may have learned little, done a miserable job as a keeper, and killed multitudes of snakes. Certainly there are animal importers who have had thousands of full cages of reptiles for dozens of years; most of these people are truly experts at what they do, but there have been a few that were grossly incompetent, able to stay in the business only because of the short time they maintained any animal. In the animal business in general, if people continue working with animals, they gain experience and eventually gain expertise.

Today there are giants of herpetoculture living among us, many of whom are unrecognized by most keepers. These are people with whom one can spend an afternoon talking at a snake show where they are sitting behind their tables. These are the keepers with thousands of snake-years, a degree of experience that in the future may never be equaled. An amazing number of these people are modest snake folk who remain quiet in a crowd while some 15-year-old “expert” with only three snake-years loudly pontificates about how to keep ball pythons or spotted pythons.

Consider, there may be herpetological prodigies, but there are no young herpetocultural experts.

How much experience is a lot of experience? Well, there are quite a number of keepers with 1,000 snake-years, obtained by keeping 100 snakes for 10 years or 50 snakes for 20 years. Even 500 snake-years of experience amounts to a very respectable career with snakes, certainly qualifying one as an expert. Today there are several dozen active keepers with more than 5,000 snake-years of experience. And there are a few keepers among us with more than 10,000 snake-years of experience, some of whom are still keeping snakes!

Unfortunately, many of herpetoculture’s greatest experts have not documented their hard-accumulated wealth of knowledge. Some of them are already dead, and many of the rest will disappear almost without a trace. But while they may receive little notice or credit from future generations of snake keepers for the collective body of knowledge generated by their experience, they will have contributed. They will leave behind to the current generation their conversations on the telephone, their shop talk around the beer kegs, their input to panel discussions at annual herpetological meetings, their discussions across the table at weekend reptile shows. Some of their stories may become part of the myth and lore of our world. They will leave behind their trainees and interns who cleaned cages for the fun of it, the kids they have inspired, and in some cases, the keepers they directly taught to keep snakes. In herpetoculture, we build on the experience of the experts who came before us. Just by doing what they love to do, they will have contributed.

We snake people need to be more aware of the varying levels of experience around us in the snake world. Experience does count. Often it makes the difference between life and death, both for the keeper and the kept. It only takes a lot of money to amass a large collection of snakes, but it takes devotion and expertise to keep a large collection of snakes for years. Perhaps it is time that herpetoculture follow the example of falconry. It’s easiest for the government to take away everyone’s right to maintain venomous and large snake species if we keepers have no bona fide, recognized experts, and if we have no level of Master Snake Keeper to which young keepers can aspire.

Today some of the greatest experts of herpetoculture are living among us, many of them still off in their little worlds cleaning cages. We need to acknowledge their devotion and experience. We need to acknowledge the unit of a snake-year as a valid and necessary means to measure experience and, by extension, expertise. We need to know our experts.

In fond remembrance of Ilene Sievert, who died December 16, 2012, this year we will reprint several of the essays that Ilene wrote for these pages between 1988 and 1993 under the rubric "Frog City." This one is from July 1988.

Frog City by Ilene Sievert

II. A Trying Guest Arrives Unannounced

Last September, in the season when nights are cool but days still mellow, and gardens are old and rich and ready for an active retirement before senility and death (and who can say in which hour they will strike), the cleaning woman came lugging a large bucket. She brought it, she said, "because I know you love turtles." At the bottom of the bucket, in a few inches of water, was a large greenish disk. Eva had been fishing in a lake in southern Indiana and the turtle had hooked himself on her worm-baited line. She took it back to the apartment in Chicago and her daughters had amused themselves with it, and fed it worms, she said, and now she brought it to me. I could guess why.

The object in the bucket looked like an olive drab pita bread, about six and one half inches in diameter, and rimmed in creamy yellow. A black line was hand drawn with an ink brush just inside the circumference. The same brush had drawn black o's in the middle diminishing to small dots and dashes near the edge. A real, live, softshell.

Firsthand observation of softshells had been limited to some juveniles at CHS meetings and a distant view of snorkels and beady eyes in Florida waters. There were overheard conversations on how mean-tempered they are, how long the neck and sharp the jaw, how very aquatic, so that tissues absorbed oxygen directly from the water to supplement air breathing; also that they are best kept alone, other turtles might injure them, that they like to burrow into the bottom, covering their backs with mud or sand, sticking out their long-necked heads to grab prey or breathe.

I did know personally, in all verity, that adult aquatic turtles take a big tank and are very dirty.

"I'll want my bucket back," Eva said.

I asked if there were any more fishing trips to Indiana this year. Alas, no.

In the yard is a long galvanized tub partly full of water, and containing a clay drain tile propped with heavy bricks. On sunny days we brought out a juvenile wood turtle to stretch his legs, get sun, and improve his mind with new experience. The tile was a cool shelter. (An outdoor tub is a good place to feed minnows because the stinky remains can be easily hosed away.) Woodie was always taken in before evening for fear of raccoons. Raccoons had mauled an adult painted turtle left out one summer night and left her bleeding on the lawn. Nevertheless, that big softshell could not go in a ten-gallon tank, the only other accommodation with immediate occupancy. So, we carried the bucket and contents over to the tub. When I picked up the disk the back was rough as sandpaper but the underside was unexpectedly slick and slippery. Legs and head jerked out and the

turtle flew into the tub, apparently unhurt, and glared up at me from a weird little snorkel-tipped head. Then he hid in the drain tile. Raccoons did not bother him.

There was a CHS meeting next evening, so I took him along (in my own bucket) for an inspection by the turtle-elders and to confirm identification as male eastern spiny softshell, *Trionyx spinifera*. One maven, my favorite patient maven, demonstrated the cleverest method for inspection of a turtle's jaw. First, annoy its head until it bites a finger and hangs on. Then, by moving the finger around, one can scrutinize parts of the mouth and jaw. When the turtle is tired it lets go. This simple but valuable idea can be extrapolated for other occasions of natural observation. (Perhaps one should take care not to exceed tissue tolerance of the experimenter. Even if the possessor of the finger, foot, head, or whatever is not the observer, screaming and writhing might obscure accurate data-taking.)

You may read about the great length of a softshell's neck. How more impressive to see it stretching around for a nip as it is held! Another maven taught me to hold it by the rear leg openings. You have to catch it first. Fortunately, although Snork feared and detested human contact he put more energy into flying than biting.

He spent several weeks in the outdoor tub and appeared to eat nothing. Hastily we caulked up an old 15-gallon tank, fitted it with a waterfall type filter, and brought Snork indoors. For one day he freaked out, rushing around trying to climb out of the tank. If it was too full of water he flew out. If a haul-out was provided he flew out. As he didn't, contrary to appearance, sail like a frisbee, the tank was kept on the floor. Then he settled into a state of inactivity. He remained near the bottom, rarely sticking up his snorkel and pulsing his neck under the fast flowing current of falling water. He ate nothing. After a month of this I consulted a turtle-elder about the problem. We discussed water temperature. The unheated water was the temperature of the air in the house, about 68–72°F. Warm it up to mid 80s was the suggestion. How strange it seems in winter, to heat up a temperate climate wild animal to a degree uncomfortable to me! True, if I were naked and wet 84 would be more comfortable than 68. Yet, it's doubtful the rise in temperature would stimulate my appetite for worms so perhaps the analogy doesn't hold. Has anyone tried putting little wool sweaters on turtles? Imagine the collar!

By this time we had acquired a 20-gallon tank and gradually warmed it to 84°F. After a week of warm temperature the animal came alive. Now Snork could be observed swimming and feeding. He entranced us and every visitor with his weird beauty. The smooth crusted pita bread body appears slit at opposite sides, head and forelegs inserted in the front end, rear legs and

thick tail in back—a turtle sandwich. The streamlined small head has a slender tubular pig snout with two piggy holes in the end, light colored, flexible and probing. He stuck it into all the corners and walls of the tank, rubbing it along the glass till it glowed pink. The eyes are yellow, round, small and high, with an dark dot in the center. They shift rapidly back and forth, staring, nervous, apprehensive. A pair of double black stripes, filled with gold, lead back from the top of the snout through the eyes. The snaky neck is legendary for extending the snorkel to the surface, but my favorite neck maneuver is “periscope up,” when the head angles to get the eyes above water without pointing the snout straight up. Then scan left, scan right, submerge. When the neck extends, the shell behind it hikes up like the stiff tapestry collar of a bishop’s cope.

The front and back legs, all mottled in gold and black, are a mass of voluminous wrinkles and folds that unfurl as paddles, the rear legs especially wide when opened for hovering. No wonder he flies so well. Each leg is tipped by ivory claws that can be strongly deployed. In his short stay in the fifteen-gallon tank he scrabbled out all the inner bead of caulking. Gravel and sand had been put in as substrate, but it was so hurled about the filters were ruined. The claws also give good purchase in human skin preparatory for flying take-off.

The tail, like the head, has a pair of double stripes. This male turtle has a special secret weirdness—an almost black copulatory organ, thick and half as long as he is, and shaped in a burst of ragged points at the end. He modestly would evert this organ from his tail only when he believed himself alone. If he caught sight of a voyeur it disappeared magically, the genie back into the bottle.

Even his plastron is strange, slippery as oiled teflon. It is translucent and blood vessels show through it.

When he wishes he can pull in legs and head and tuck the tail sideways for the “disk look.” A front view shows mottled wrinkles with a central circle of folds surrounding two snout holes.

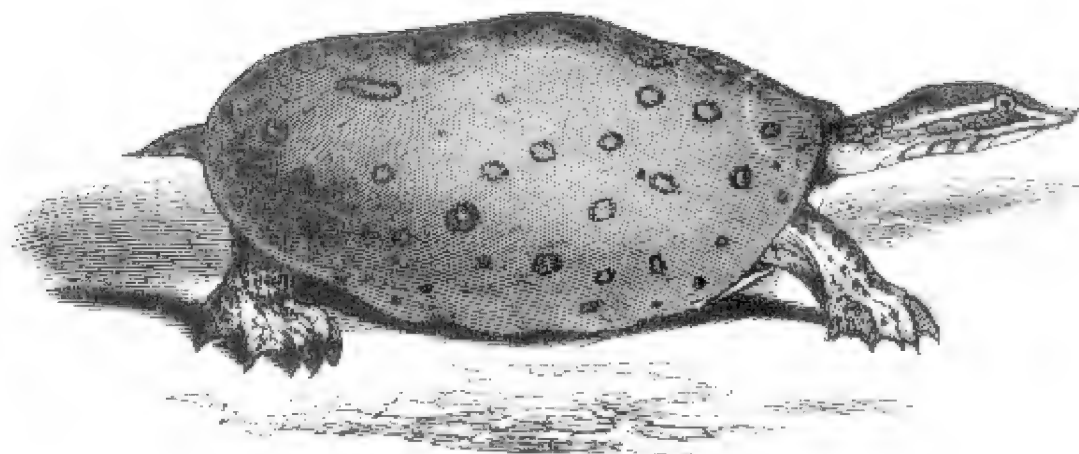
Snork ate prodigiously of vitamin-fortified mealworms, minnows, and earthworms. He liked poultry liver and had turkey liver for Thanksgiving. He fouled his water, also prodigiously.

Filtering was insufficient. We changed half the water once a week but the water grew cloudy and slimy. Even after complete changes it would cloud in one week. Unpleasant whitish circles appeared on his back, first faintly then more pronounced. Dark spots formed on the back of his neck and blackened rims on his feet. Worst of all, he tried desperately to fly out of his tank, something not done since the first hectic day indoors. It soon became obvious that the white circles were open sores. Dry him a while, I thought. Less than a day dry left him shriveled and miserable, so we tried shallow water with the back exposed. A water mark appeared with a shrivelled area where it had been dry. Enough - off to the vet to treat and correct whatever was wrong. Antibiotic was injected and applied. It seems this very aquatic turtle needs to bask. He always had a vitalite, but we never could figure out how to put a basking place in the tank without the flying turtle effect. We had to roll up sleeves, grab turtle, and put him in a separate dry tank lined with newspaper, for basking under a warm incandescent lamp (and vitalite too for good measure). After an hour he was hidden under the newspaper. We always set a timer to avoid cooking turtle en papillote. At first this was done daily, then every two–three days.

It also seems that softshells are very sensitive to pH of the water and my Evanston tapwater is too alkaline. Acidity and salt were gradually added using a husbandry information sheet and water testing kit. These adjustments must be redone with any water change, which schedule has been complete change, washed tank, once a month. Oh, those siphons, buckets, and puddles!

On this regime Snork now looks lovely, the sore and black areas healed (with lots of sloughing) and only a faint circular water line remains on his back. As a result of so much handling he is less wild and will eat when someone is looking. He’ll even take a choice bit off the end of a forceps. It is still apparent, though, that he detests people and captivity—and this particular person detests his demanding health requirements. Snork will be repatriated through the CHS Bureau of Immigration, to a quiet lake where, one hopes, fishermen will not often tempt him. There he will be free of grabbing hands and prying eyes.

Meanwhile, Eva still cleans for us, so watch this space.



What You Missed at the January Meeting

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Ray Pawley is a man who needs no introduction . . . unless you're young, not interested in herps, have no association with zoos in the last several decades, were not a member of the Chicago Herpetological Society at its genesis, have had no association with your society for several decades, have not attended any of the multiple meetings where he has been a guest speaker, or have not read any of the articles I kludged together about those meetings. So I'm going to introduce him again (reintroduce?) for the few of you out there that may fall under any of those categories. Not that I'm casting stones here. Well, it is a sin not to be reading my articles, but there are certainly very reasonable explanations why someone who is reading this might not know the name of Ray Pawley. Few of them, but they do exist.

After years of keeper and curatorial work at Lincoln Park Zoo and Brookfield Zoo, Ray has now retired to New Mexico, but ties to this area still bring him to Chicago where we take advantage and have him disseminate some of the immense knowledge that he's acquired. Among all of his other accomplishments, he managed to be a force in the establishment of your society and served as president multiple times. Not that I'm trying to date Ray, but he was keeping reptiles and amphibians, along with mammals and birds, when little was known of husbandry for most animals. For a little while at February's meeting he allowed us a glimpse of some of the trials of those years and some of the lessons learned. In the aviation industry when a group of pilots sit around swapping stories they call it hangar flying. New pilots or even not-so-new pilots glean valuable information from those sessions. Ray gave us a little taste of hangar flying for those of us keeping herps. Much to my chagrin, I was unable to attend, but Josh Baity was nice enough to record the presentation and I am happy to give you an idea of what went on.

Ray began by claiming he might be the kiss of death for reptile houses, seeing as Lincoln Park Zoo has now closed the reptile house he worked in there, and soon after he retired from the Brookfield Zoo that reptile house also closed. To the laughter of his audience he refused to ever work for Rob Carmichael because, as the last reptile-concentrated facility in the area, he didn't want the Wildlife Discovery Center to close. He also said that he would stick to his notes or he would be talking until midnight.

He emphasized the greater flexibility that individuals have over zoo curators, who have to satisfy the demands of not only the animals, but also the public and the administration. The interaction of these three claimants often obstructed the best solutions, but Ray did the best he could with what he had. The Brookfield reptile house was designed in the 1920s when the state-of-the-art thinking was reptiles needed only a water bowl and the habitat was to be dry. By the '60s humidity was a major



Ray Pawley. Photograph by Dick Buchholz.

player in reptile husbandry and Ray talked of being stuck with a building that had inadequate heat, no air conditioning, no humidifier, and minimal electrical outlets. In the winter it was too cold and in the summer it was too hot. Ray remembers using cold packs for the animals as crowds of visitors toured the house with sweat dripping from their noses in the hundred-degree building.

Ray would admonish his staff never to surprise him. An administrator broke that rule when, after hearing that the reptile house needed humidity, had a humidifier installed without consulting Ray. Within two weeks the animals were developing skin blisters, the plaster walls were melting, and Ray was forced to combat the added humidity. Good intentions can have poor outcomes.

Ray's rule of thumb for what constitutes a good representation of reptile species involves about a hundred different species. In a house designed with only sixty exhibits, he had to experiment with multiple animals in the same cage. After poor results caging closely related species, they hit upon the successful tactic of housing unrelated species that needed the same habitat and wouldn't compete for the same resources. Combining turtles and snakes and other vastly different species allowed him to boost the number of species displayed to 120, covering all major orders of reptiles except the tuataras, which Ray claimed were not a particularly charismatic order anyway.

But making an appealing attraction for the public meant introducing more than just reptiles, and Ray introduced small mammals and birds to the reptile house. Marmosets would run along the guardrails, enough at home that they actually bred, and touracos would careen through the visitors as the African birds flew from one exhibit to another. And most of us who visited that reptile house remember what Ray said was the most popular exhibit, the Madagascar hissing cockroaches.

Brookfield's success at having long-lived animals across all species Ray attributes to his staff always listening to the animals. He pointed out that not everything written on care is accurate nor do the animals read the books. While literature research is important, it's more important to put egos aside, consult with keepers, pool opinions, and watch the animals. Setting up protocols is absolutely necessary, but Brookfield was constantly updating and changing procedures based on what was learned from the animals. A good lesson for those of us who are keepers, but Ray stressed that changes to actions that have worked in the past should be carried out conservatively.

In a zoo setting, Ray refrained from making the animals pets. Animals were encouraged to own their cages. Handling was kept to a minimum and was always negotiated with the animal. Rather than grabbing an animal to relocate it, a snake hook might be used to gently displace the animal while the cage was being cleaned, always with the goal of minimizing stress. Cage

furniture was always replaced in the same spot. And Ray made a case for not sterilizing everything in the cage, but allowing ordinary bacteria to aid the animals' immune responses and digestion. Clean is OK; sterile probably not needed and potentially harmful.

To illustrate his concept of listening to animals by attempting to understand how they perceive the world, Ray used the arrival of a seven-foot-long fer-de-lance (*Bothrops asper*). For a year the animal, while not appearing distressed, refused to eat. Ray, thinking of a snake's ability to receive infrasound and realizing that the hundreds of zoo visitors traipsing through the reptile house eight hours a day would certainly have an impact, put a sponge-rubber pad under the animal's favorite resting spot. The next day the snake ate. The snake lived for 17 years.

Ray also highlighted that many husbandry solutions are counterintuitive. Water snakes in captivity seem to prefer a dry environment with a water dish whereas many desert species need moisture such as a hide box with a moist sponge. Ventilation is good, but not breezy conditions. Vents at the top and bottom of the cage are best, and Ray touted the value of simple solutions, such as plastic wrap covering part of the vents as a simple way to raise humidity in an otherwise too dry cage. Fogging or misting is probably valuable for all animals, though frequency is dependent on the species.

Ray credited captive-bred animals for a greater resistance to some of the maladies that curators used to have to fight. A quick survey revealed that not one of the keepers in his audience had trouble with mouth rot or pneumonia. The Brookfield zoo would run the splayed heads and tails of shed skins through a copier machine as a record of an animal's health, but would dispose of the shed to prevent the possibility of spreading disease. An interesting technique and something I might try.

Ray's theory on pyramiding in tortoises gives more credence to heat problems than too much protein. He says that a heat "sandwich," with even heat sources from above and below, kept pyramiding to a minimum in Brookfield's tortoises. His presentation was ended with a lively discussion of the possible functions of the lymphatic system in reptiles.

And that discussion was probably a glimpse into Ray's style of management when it comes to captive animals. He encourages debate, tries to learn from the animals in his care and the people doing the caring, and adapts when he sees a need. If we as keepers take nothing else from his talk, we'll be better for following those ideas. A chance to indulge in decades of experience with keeping reptiles and amphibians, that's why I wish I were at the meeting. That's one reason I belong to the Chicago Herpetological Society.

Herpetology 2013

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

MAMUSHI ECOLOGY AND CONSERVATION

K. Sasaki et al. [2012, J. Herpetology 46(4):689-695] note that the Japanese mamushi (*Gloydius blomhoffii*) has long been exploited for its medicinal value. They studied this snake's reproductive ecology on Hokkaido and assessed its vulnerability. They marked 299 individuals from 1999–2002 and kept 29 pregnant females in captivity until parturition. Pregnant females aggregated at gestation sites during summer and fall until just before parturition. Behavior suggestive of mating seasons was evident mostly in August and September. As expected, there was an apparent sex difference in body size in adults but not in neonates: females were larger than males. Consistent with previous reports, both neonates and adults were larger in Hokkaido than in southern Japan. The smallest pregnant female measured 44.8 cm in snout–vent length, which was larger than values reported from southern regions. Offspring sex ratio was statistically equal: 88 males to 105 females. Litter size averaged 6.6 offspring. Longer females tended to produce larger litters and longer neonates. The proportion of pregnant to non-pregnant females, coupled with mark–recapture data, suggested that mamushi females skip one or more years between reproductive bouts. Relative litter mass (RCM) was large (83% on average), and postpartum body condition was lower, especially so in females with larger RCM. Direct human-caused mortality was highest for pregnant females (70.2%), followed by non-pregnant females and then males. High adult mortality, particularly of pregnant females, raises a concern about population persistence, because mamushi exhibit a slow life history. The tendency of pregnant females to aggregate at predictable locations further makes mamushi populations vulnerable to human killing and exploitation.

MALE VOCAL RESPONSES CHANGED BY EARLY EXPERIENCE

B. Dawson and M. J. Ryan [2012, Copeia 2012(4):678-682] note that the acquisition of signals used in intrasexual communication is not well studied. To better understand the possible contribution of early experience to the acquisition of intrasexual responses, the authors reared Neotropical túngara frogs, *Physalaemus pustulosus*, in four acoustic environments: 1) conspecific chorus, 2) heterospecific chorus, 3) acoustic isolation, and 4) noise. For the heterospecific chorus, they chose the calls of a congener, *P. enesefae*, with which *P. pustulosus* is sympatric in parts of its distribution. They measured the evoked vocal responses (EVR) of these frogs in response to calls of the conspecifics, to calls of the congener, and to calls representing an intermediate between the two species. Male *P. pustulosus* reared hearing the calls of *P. enesefae* produced more calls overall and more complex calls in response to the call of *P. enesefae*. This is consistent with the hypothesis that the EVR of male anurans can be influenced by early experience and is the product of an interaction between genes and the environment.

SOUTH AMERICAN DWARF BOAS

F. F. Curcio et al. [2012, Herpetological Monographs 26: 80-121] report that a taxonomic study on the South American dwarf boas of the genus *Tropidophis* revealed the existence of two new species in the Atlantic Forest biome. As a result, they recognize five mainland species, three in the Atlantic Forest and two in northwestern South America. Based on general distribution and morphological orientation, the type locality of *T. paucisquamis* is restricted to Estação Biológica de Boracéia, municipality of Salesópolis, state of São Paulo, Brazil; furthermore, a lectotype for *T. taczanowskyi* is designated. The authors provide data on the hemipenial morphology of two South American *Tropidophis*, showing that the quadrifurcate condition described for West Indian taxa also occurs in mainland congeners. The distributions of the three Atlantic Forest species are congruent with patterns of diversification of other vertebrate taxa associated with cold climates prevalent at high elevations. Refugial isolation and riverine barriers may account for such speciation events.

REPRODUCTIVE ECOLOGY OF A GLASS FROG

A. Valencia-Aguilar et al. [2012, Copeia 2012(4):722-731] describe for the first time aspects of the reproductive ecology and behavior of a population of *Hyalinobatrachium aureoguttatum* located in the Colombian Pacific lowlands. Males vocalize and attend clutches from the underside of leaves overhanging the streams. Males showed high fidelity to their territory; each male repeatedly uses the same leaf for perching, calling, mating, and clutch attendance. There were no significant differences in the environmental variables registered for the microhabitats where males were located with or without clutches, with one or multiple clutches, or between successful or unsuccessful clutches, which suggest that the analyzed variables are not important for the obtention of the clutches and their success. Males were found grouped in the study area at distances varying between 0.3–0.5 m; thus, more than one male can be observed occupying other leaves in the same plant. Fights or aggressive behaviors were not observed in intrusion events by co-specific males in the territory of the resident males; however, the authors observed a series of movements that resulted in moving the intruder further away. Females almost immediately abandoned the clutches after oviposition, whereas most of the time, at day and night, males stayed near, touching or sitting on one to five egg clutches during most of their embryonic development. This brooding behavior also included hydration, cleaning, and defense of the eggs. Arthropod predation was observed in both attended and abandoned egg clutches; however, in one observation, the behavior of the male moved the predator away and saved the clutch. These observations and the finding of abandoned clutches that did not complete their development suggest that male parental care increases embryo survival and, as a result, his reproductive success.

MILKSLAKE FEEDING ECOLOGY

B. T. Hamilton et al. [2012, J. Herpetology 46(4):515-522] examined the diet of the milksnake (*Lampropeltis triangulum*) in the western United States and evaluated predictions about ontogenetic shifts, sexual divergence, and geographic variation in diet. Identifiable prey items were found in 139 specimens, and 41 additional prey items were recorded from the literature, for 180 prey items in total from 175 individual snakes. *Lampropeltis triangulum* is a generalist predator and feeds primarily on lizards and mammals. Skinks made up a large portion of the total diet. Other lizard taxa were also important prey, whereas reptile eggs, snakes, and birds were consumed infrequently. Ontogenetic shifts in diet were documented. The upper size limit of prey increased with increasing snake size, and adult snakes continued to feed on small prey. Prey type also was related to snake size. Juveniles fed more frequently on lizards, but adults fed mainly on mammals. Although males were longer than females, there was no sexual size dimorphism in mass, and there were no differences in diet between sexes. Diet varied geographically, and the proportion of endothermic prey was greater at higher latitudes after accounting for snake size.

GOPHER TORTOISE BURROW DENSITIES

T. D. Castellón et al. [2012, Chelonian Conservation and Biology 11(2):153-161] note that gopher tortoises (*Gopherus polyphemus*) occur in a variety of habitats, but are primarily associated with sandhill communities. In peninsular Florida, however, mesic flatwoods make up the largest area of habitat, and scrub often replaces sandhill on inland ridges. Tortoise ecology is poorly understood in these habitats and few data are available to guide management. The authors surveyed tortoise burrows and assessed vegetation in scrub, flatwoods, and pine plantations on flatwoods soils at Avon Park Air Force Range in south-central Florida. Densities of noncollapsed burrows in scrub (1.93/ha) and flatwoods/plantations (1.42/ha) were generally lower than is typical for sandhill (3.25–9.95/ha), although total abundance was high (>20,000) because of the large habitat area. In scrub, low burrow densities may be due to low abundance of food plants. Nonetheless, the burrow density in scrub was significantly higher than in flatwoods/plantations, where food was abundant but soils were poorly drained and burrows were often flooded. The percentage of collapsed burrows was significantly higher in scrub (53%) than in flatwoods/plantations (35%), although a higher percentage of the remaining (noncollapsed) burrows were active in scrub (23%) than in flatwoods/plantations (16%). These patterns (and data from a subsequent radiotelemetry study) suggest that tortoises in scrub maintain strong fidelity to individual burrows, and frequently abandon others, whereas tortoises in flatwoods share burrows and move among them regularly, but rarely abandon them. This sharing and continual reuse of available burrows suggests a possible limitation on suitable conditions for burrow construction in flatwoods, probably related to the high water table. Scrub and flatwoods may constitute suboptimal habitats for gopher tortoises, due to low abundance of food in scrub and poorly drained soils in flatwoods. Nonetheless, large numbers of tortoises may occupy scrub and flatwoods, necessitating better understanding of their ecology in these habitats.

DENSITY AFFECTS GOPHER TORTOISE BEHAVIOR

C. Guyer et al. [2012, Herpetological Monographs 26:122-134] compared patterns of burrow size, tortoise size, home range size and overlap, movement distances, and mating rates among six sites that differed in density of gopher tortoises (*Gopherus polyphemus*). Burrow sizes differed among sites because tortoise size distributions differed among sites, but this was due principally to the unusually small size of animals on the Conecuh National Forest site. A linear relationship between tortoise density and burrow density was documented from the six sites, suggesting that each tortoise, on average, created 2.5 burrows or that the burrow-to-tortoise conversion factor for the sites was 0.40. The average distance from a burrow to its nearest three neighbors was greater for low-density sites than for high-density sites, indicating that animals probably were more isolated from each other on sites with low tortoise densities. Home ranges were larger in males than females, a feature documented in other studies of tortoise movements. Home range sizes were greatest for densities of approximately 0.4 tortoises/ha and decreased in size above and below this density. This suggests that animals moved to visit close neighbors in areas of high density, expanded movements to maintain contact with neighbors that became more widely dispersed as density decreased, and then restricted movements to a few close neighbors as density reached extremely low levels. Home range overlap increased linearly with increasing density, suggesting that opportunities for social interactions decreased with decreasing density. When tortoises moved between burrows, males moved longer distances than females and tortoises of both sexes moved shorter distances on high-density sites than did tortoises on low-density sites, suggesting greater movement costs for males than females and for tortoises on low-density sites. Males traveled up to 500 m to visit female burrows, but most movements were < 80 m. Median movement distances of males to visit females were negatively correlated with burrow density, suggesting that cost of male movements to find mates increased as population density decreased. Based upon patterns of 95% confidence limits, rates of mountings of female tortoises approached zero when females occupied burrows approximately 200 m from neighboring burrows. If burrows were uniformly distributed 200 m apart, then reproductive failure would be a statistically supportable outcome at a density of 0.3 burrows/ha (0.12 tortoises/ha). These values are similar to the values of 0.4 tortoises/ha (1.0 burrows/ha) that the data suggest is the density at which social structure associated with movements within home ranges are altered.

RADIATED TORTOISES AS BUSH MEAT

R. C. J. Walker, and T. H. Rafeliasoa [2012, Chelonian Conservation and Biology 11(2):223-226] report that radiated tortoises (*Astrochelys radiata*) are facing a significant extinction risk within the next few decades as a direct result of the increasing popularity of the species as bush meat. Sampling across the species range revealed a mean carcass encounter rate of 2.2/km of transect, with highest levels of poaching within the Linta and Menarandra river regions. No poaching was recorded within the 2 protected areas within the core of the species range. Improved local law enforcement, in addition to community-based conservation initiatives, is critical to combating this crisis.

EFFECTS OF CRAYFISH ON TADPOLES

M. J. Davis et al. [2012, J. Herpetology 46(4):527-534] note that habitat structure is known to influence community interactions, but its role in amphibian communities is unclear. The authors examined the effect of vegetative habitat structure, in the presence or absence of a crayfish predator (*Orconectes rusticus*) and the herbicide atrazine, on green frog (*Rana clamitans*) tadpoles reared in 10-l microcosms in the laboratory. Crayfish predators reduced green frog survival and affected activity levels and micro-habitat use differently depending on the presence or absence of vegetation. In treatments with vegetation, activity levels were greater when the crayfish predator was absent, but in treatments without vegetation activity levels did not differ between predation treatments. Moreover, when a crayfish predator was present, tadpoles in treatments without vegetation spent more time at the water surface than tadpoles in treatments with vegetation. This preference for the water surface may have been a compensatory behavioral change to avoid predation because it was less likely that crayfish would be able to reach the upper portion of the tank in the absence of vegetation. Atrazine exposure did not significantly influence susceptibility of green frog tadpoles to crayfish predators or alter the impact of vegetation. The authors found that vegetative habitat structure can mediate predator-prey interactions. Contrary to previous studies they found that the presence of vegetation may benefit the crayfish predator and result in both lethal and sublethal effects on tadpole prey.

NEST PREDATION ON MAP TURTLES IN WISCONSIN

G. A. Geller [2012, Chelonian Conservation and Biology 11(2): 197-205] obtained incidental observations on nest predation dynamics at 2 map turtle (*Graptemys* spp.) nesting sites along the Wisconsin River, Iowa County, Wisconsin, during primary research on the use of electric fencing to decrease turtle nest predation. Sites were continuously monitored by digital trail cameras during the 2008–2011 reproductive seasons. Raccoons (*Procyon lotor*) displayed temporally focused turtle nest foraging efforts across both sites and years and were the only confirmed nest predators. Striped skunks (*Mephitis mephitis*), Virginia opossums (*Didelphis virginiana*), coyotes (*Canis latrans*), and American crows (*Corvus brachyrhynchos*) were less frequent on site but also displayed recurring seasonal chronologies. Nest predation levels exceeded 90%, with short nest survival timelines suggesting relatively high predation pressures on these sites.

THE TURTLES OF BHUTAN

J. T. Wangyal et al. [2012, Chelonian Conservation and Biology 11(2):268-272] present the first report on the turtles of the Himalayan Kingdom of Bhutan. They found five turtle species: *Cuora amboinensis*, *C. mouhotii*, *Cyclemys gemeli*, *Melanochelys tricarinata*, and *Indotestudo elongata*. The record of *C. mouhotii* is a significant range extension to the west; that of *C. amboinensis* is a range extension from adjacent northeast India; and those of *C. gemeli*, *M. tricarinata*, and *I. elongata* fill geographic gaps in their known distributions. An analysis of distributions of other turtle species in adjacent eastern Nepal and northeast India suggests that additional country records of turtles may be found in Bhutan, especially in the southern lowlands of the country.

USE OF HIBERNACULA BY PINESNAKES

J. Burger et al. [2012, J. Herpetology 46(4):596-601] note that understanding the specific habitat requirements of reptiles during different life stages or seasons is critical to conserving viable populations. Northern pinesnakes (*Pituophis melanoleucus*) are one of the few species that spend the winter in underground hibernacula that they excavate themselves. The authors report on 26 years (1986–2011) of monitoring pinesnake use at seven hibernacula in the New Jersey Pine Barrens. The goal was to determine the frequency of repeated use, number of snakes present by year, disruptions of hibernacula, and the relationship between number of snakes present and the probability of occupancy of each hibernaculum in successive years. The overall goal was to determine the importance of protecting known hibernation sites regardless of whether they appear occupied in a given season. These data suggest that, if no snakes are observed entering a particular hibernaculum over a limited time period, it does not mean none are there or that none will use it in successive years. The variability in use suggests not only that predation and human disturbance can result in nonoccupancy the following year but that environmental and temperature-related conditions force snakes to have alternative hibernacula to reduce risk and ensure survival. Pinesnakes are listed as threatened by the New Jersey Department of Environmental Protection for many reasons, including habitat loss. There is continued pressure from developers to destroy habitat during development, including critical hibernation sites. The long-term use of specific hibernacula, even with periods of low or no use, suggests that these resources should be protected to provide a matrix of available overwintering sites.

CONSERVATION OF TURKS ISLAND BOAS

R. G. Reynolds and G. P. Gerber [2012, J. Herpetology 46(4): 578-586] note that the boid genus *Epicrates* contains 10 species in the West Indies, several of which are listed as threatened or endangered, whereas the status of the others remains unknown. Little is known about Turks Island boas (*Epicrates chrysogaster chrysogaster*), a subspecies of the Southern Bahamas boa endemic to the Turks and Caicos Islands. No published ecological studies exist for this subspecies. A long history of human habitation, greatly exacerbated by exponentially increasing development in the last several decades, appears to be threatening the remaining populations of these boas. However, a lack of basic ecological information is holding back conservation efforts. The authors report on the first multiyear ecological study of Turks Island boas, focusing on an important population located on the small island of Big Ambergris Cay in the southeastern margin of the Caicos Bank. Encounter rates of up to 3.5 snakes per person-hour make this population especially easy to study. They captured 249 snakes, 11 of which were recaptures. They provide basic natural history information including size, color pattern, girth, body temperature, abundance, diet, activity, diurnal refuge selection, and population size. They also clarify the known distribution and discuss the conservation concerns of this species. This study fills a gap in the ecological knowledge of Bahamian boas and will provide important baseline data for the Big Ambergris Cay population of Turks Island Boas as this small island undergoes extensive development over the next several decades.

The Tympanum

Croc Fest

The 2012 Christmas Croc Fest, a fundraiser for crocodilian conservation, took place on 08 December 2012 at Shawn and Jen Heflick's facility in Palm Bay, Florida, USA, raising a record US\$15,000 for critically endangered Orinoco crocodiles. Croc Fest is an annual, grass-roots fundraiser supported by private individuals, businesses, and zoos, all with a common interest in conserving crocodilians. The funds raised at this year's event will be directed to Asociación Chelonia, a Madrid-based NGO that has made great progress in getting a comprehensive conservation program underway for Orinoco crocodiles in Colombia. 100% of the funds donated go to the cause, as all event expenses are covered by organizers Shawn Heflick, Flavio Morrissiey, Colette Adams, and Curt Harbsmeier.

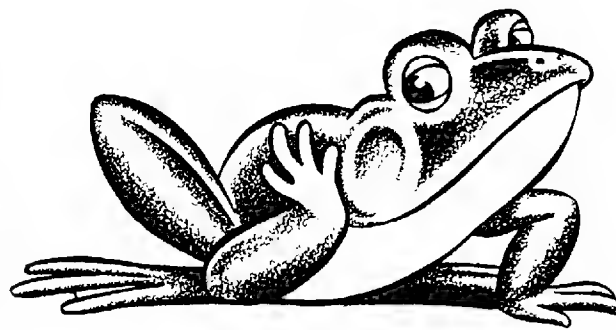
Croc Fest has evolved into a family-friendly event, and attracted some 150 attendees who were treated to live animal displays and presentations (courtesy of Gator Adventure Productions), live music (courtesy of Daniel and Lisa Parker), BBQ (prepared fresh, on site), libations, fishing, kayaking, a silent auction and finally, a rousing live auction conducted by Joe Wasilewski and Shawn. Event-goers were also treated to a tour of Shawn's lab, where scenes in episodes of Nat Geo Wild's Python Hunters have been filmed. Finally, Luis Sigler from Dallas World Aquarium timed his delivery of two juvenile Orinoco crocodiles to Shawn's facility so that Croc Fest attendees could witness their uncrating and see and study Orinoco crocodiles up close!

Rapport between Joe and Shawn made for a very entertaining and profitable live auction. Everyone enjoyed great food and camaraderie while bidding on unique items, including authentic items from Colombia (provided by Asociación Chelonia), and items donated by zoos, businesses and individuals throughout Florida and other parts of the country.

We thank all of the individuals, businesses and zoos which supported this fundraising event.

About the Supported Conservation Program

Commercial hunting of the Orinoco crocodile began around 1929, and from that time to 1960, it is estimated that between 2 and 4 million crocodiles were killed in both Venezuela and Colombia. Until very recently, parts of Colombia have not been safe for western scientists. For this reason, less is known about the actual status of Orinoco crocodiles in the wild in Colombia versus Venezuela. Surveys now reveal that the total wild population of Orinoco crocodiles in Colombia is possibly as low as 130 adult animals, down from an estimated 780 in 1974–1975.



That is why Asociación Chelonia's work is so important now.

The majority of the remaining population of this species in Colombia is located in the area where the work of Asociación Chelonia is taking place. Its program, initiated in 2010, began with surveys of the wild population in conjunction with evaluation of the

crocodiles' ecosystems. With much of the groundwork for this project already laid, its proposed activities over the next two years include the following:

- Identify an adequate site for a headstart and release program, with accessibility for follow-up and enforcement of protection laws in mind
- Work with landowners to create a private reserve for a pilot reintroduction program
- Continue to conduct local and national education campaigns, including the development of web pages for children, educators and biologists
- Develop publications on the 6 species of crocodilians in Colombia and distribute these free-of-charge to educational, environmental and conservation-based entities

The budget that has been developed to conduct these activities is US\$194,404.00. Not including the proceeds of Christmas Croc Fest 2012, over \$120,000.00 has already been raised with support from such organizations as the Endowment Fund for Biodiversity (France), the Biodiversity Foundation (Spain), and ANP—Natural Protected Areas—in Colombia.

About Asociación Chelonia

Dedicated to the creation of scientific conservation partnerships for sustainable human development and the conservation of nature, Asociación Chelonia was formed in 1997 by the Students of Biological Sciences, Madrid. It is established at ten sites within Spanish territories and has permanent offices in six other countries. In addition to its work with Orinoco crocodiles in Colombia, its focus areas include amphibian decline, climate change and sea turtle conservation. In 2010, Asociación Chelonia entered into a five-year cooperative agreement with Corporinoquia (the government environmental authority in Colombia) to work together on Orinoco Crocodile Conservation. Additionally, this first-ever targeted-release program was included as one action item in the 1998–2008 National Program for the Conservation of Orinoco Crocodiles in Colombia.

Curt L. Harbsmeier, Harbsmeier DeZayas, LLP, 5116 S. Lakeland Drive, Lakeland, FL 33813

Unofficial Minutes of the CHS Board Meeting, January 18, 2013

The meeting was called to order at 7:47 P.M. at the Schaumburg Public Library. Board members Lawrence Huddleston and Jenny Vollman were absent.

Officers' Reports

Recording Secretary: In Jenny's absence Mike Dloogatch read the minutes of the December 14, 2012, board meeting and they were accepted.

Treasurer: Andy Malawy presented the December financial report..

Membership Secretary: Mike read the list of expiring memberships and said we are steady at around 500 members.

Sergeant-at-arms: Jim Foster counted 28 people at the December meeting.

Committee Reports

Shows:

- Notebaert Nature Museum, first full weekend of each month. Josh Chernoff is coordinator.
- Chinese New Year, Garfield Park Conservatory, January 19.
- Nature on Tap, Notebaert Nature Museum, 5:30 P.M., January 22.
- Chicago Outdoor Sports Show, Donald E. Stephens Convention Center, Rosemont, January 23–27
- Repticon, Kane County Fairgrounds Prairie Event Center, St. Charles, January 26–27
- Great Lakes Pet Expo, Wisconsin Exposition Center, Milwaukee, February 2.
- Winter Fest, Hidden Oaks Nature Center, 11 A.M. – 3 P.M., February 16
- Kids Expo, Schaumburg Convention Center, March 9–10
March 10: Reptile Rampage in Lake Forest
- Chicagoland Family Pet Expo, Arlington Park Racecourse, March 15–17, 2013.

Old Business

Banners: Mike Scott suggested that any new banners should be no more than about 5' wide, so that they fit more neatly behind a 6' table.

The Grants Committee will meet on February 10 at the home of Steve and Amy Sullivan in Brookfield.

Junior Herpers club: The board discussed possibilities for advertising the club.

New Business

Theresa Savino reported that the CHS needs a new laptop for keeping track of the library. Cindy moved to allocate \$700 to get two new laptops, Josh seconded. The motion passed with all in favor. Theresa will look for two new laptops, one a base model and one a nicer model.

Aaron LaForge volunteered to look into the cost of a new projector.

David Hoff can set up a library website which would cost \$25 for life and list the library contents online.

Josh Baity will look into prices for lapel microphones.

Round Table

.Cindy was mad that there was snow on the ground in Los Angeles and she could not wear her flip-flops.

Josh has an Amazon treeboa that he hopes is giving birth during the meeting.

John's daughter Grace had an interview at U of I Vet School.

Theresa said that her daughter Molly has a friend is making a video on their iguana.

Linda found out that Ilene Sievert passed away peacefully at home on December 17, 2012, of cancer. Mike plans to republish some of the essays that Ilene wrote over the years for the *Bulletin*.

Stephanie is going to Sanibel Island, Florida, in March to do field research on gopher tortoises.

The meeting was adjourned at 9:04 P.M.

Respectfully submitted for the recording secretary by Stephanie Cappiello



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For sale: **highest quality frozen rodents**. I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm) , \$25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), \$27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm) , \$30/100; Large fuzzy mice /hoppers (10 to 12 days old—8 to 10 gm), \$35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com

For sale: High quality, all locally captive-hatched tortoises, all bred and hatched here in the upper midwest. Baby leopards, Sri Lankan stars, and pancakes usually available, and are all well-started and feeding great! Leopards are \$125 ea., Sri Lankans (2012 hatched) \$475 ea. And Pancakes are \$195 ea. Leopards for out of state sale/shipping require a veterinary health certificate (inquire for cost). E-mail at KKranz1@wi.rr.com or call Jim or Kirsten at 262 654 6303.

Herp tours: **Costa Rica herping adventures**. Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds, and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, then this is the place to do it. Go to our web-site <http://hiss-n-things.com> and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

Herpetological Researcher/Educator Internships: Research 4 Reptiles, LLC. is seeking two volunteer interns, ages 18 years and older, for the Summer 2013 season to assist in all aspects of herpetological research and educational classes. Our mission is to provide challenging, hands-on, field-based programs for participants ages 12 years and older to inspire enthusiasm for and understanding of native Illinois reptile and amphibian species. All educational programs are taught entirely outdoors at Midewin National Tallgrass Prairie in Wilmington, Illinois, and are limited to 8 participants. Internship details can be found on our website at: <http://www.research4reptiles.biz>. Email Holly Zak at research4reptiles@comcast.net or call 630-337-0757 for questions.

Line ads in this publication are run free for CHS members—\$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to mdloogatch@chicagoherp.org.



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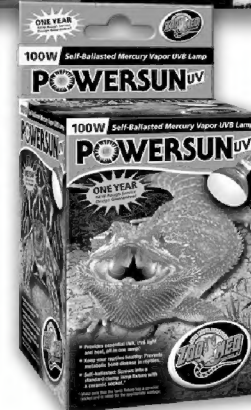
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News and Announcements

2013 CHS GRANT RECIPIENTS

The CHS Grants Committee has chosen the CHS grant recipients for 2013. The committee consisted of John Archer, Michael Dloogatch, Jim Foster, Jason Hood, Amy Sullivan and Steve Sullivan. This year we received 26 applications, as usual exceeding the number of grants that could be awarded based on available funds. After a difficult decision process, 8 grants were awarded, in varying amounts, as follows:

- Iwo P. Gross, Eastern Illinois University (undergraduate).. “Assessing and Alleviating the Negative Effects of Vehicle Access on a Snake Community within a State Park,” \$1,000.
- Matthew L. Holding, Department of Evolution, Ecology and Organismal Biology, Ohio State University. “A Tale of Two Traits: Do Coevolutionary Processes Shape the Venoms of Northern Pacific Rattlesnakes and Resistance Levels of California Ground Squirrels?” \$500.
- João Pedro Moura da Costa Maia, Centro de Investigação em Biodiversidade e Recursos Genéticos da Universidade do Porto (Vairão, Portugal). “In Cold Blood: Community Ecology of Reptile Hemoparasites,” \$1,000.
- Micah W. Perkins, Biology Department, University of Louisville. “Dietary Resource Partitioning among Watersnakes in Northwestern Kentucky,” \$1,000.
- Kimberly E. Schmidt, Cooperative Wildlife Research Laboratory, Southern Illinois University Carbondale. “Habitat Selection of Ornate Box Turtles (*Terrapene ornata ornata*) within Restored and Remnant Tallgrass Prairie,” \$1,000.
- Jaime Villacampa Ortega, Departamento de Ecología, Universidad Autónoma de Madrid (Spain). “Changes in Amphibian Assemblages along an Elevational Gradient at the Manu Biosphere Reserve, Southern Peru,” \$500.
- Daniel B. Wylie, Illinois Natural History Survey. “Ongoing Health Assessment and Prevalence of *Chrysosporium* in the Eastern Massasauga (*Sistrurus catenatus catenatus*),” \$1,000.
- Michael L. Yuan, Cornell University (undergraduate). “Characterization of Cryptic Kin Structure in Gopher Tortoises (*Gopherus polyphemus*) at Archbold Biological Station,” \$1,000.



International Herpetological Symposium
July 31 to August 3, 2013
New Orleans, Louisiana

The IHS provides a yearly symposium for the dissemination of information and research pertaining to the natural history, conservation biology, captive management, and propagation of amphibians and reptiles. We hope you will join us for this very exciting meeting in New Orleans.

For more information: www.internationalherpetologicalsymposium.com

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, February 27, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. The speaker will be **Dustin Rhoads**, author of *The Complete Suboc*. Dusty will speak on his favorite topic, trans-Pecos ratsnakes, *Bogertophis subocularis*.

At the March 27 meeting **Gerry Salmon** of Boerne, Texas, will present a program on “Saving Herps --- One at a Time: Working as a Timber Rattlesnake Monitor on the Tennessee Gas Pipeline in Northern New Jersey and Northeastern Pennsylvania.” Gerry has been an avid naturalist for most of his 51 years. He has a strong interest in herpetology and especially geographic distribution of North American reptiles and amphibians. He is also a long-term contributor to northeastern timber rattlesnake (*Crotalus horridus*) field biology and conservation efforts that became the basis for a recent seasonal job. His presentation consists of highlights of that work and is an opportunity to see some interesting herps of the Northeast. Gerry has spoken several times in the past at our monthly meetings on kingsnakes of the *mexicana* complex, timber rattlesnakes, and herping in South Carolina.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago’s newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

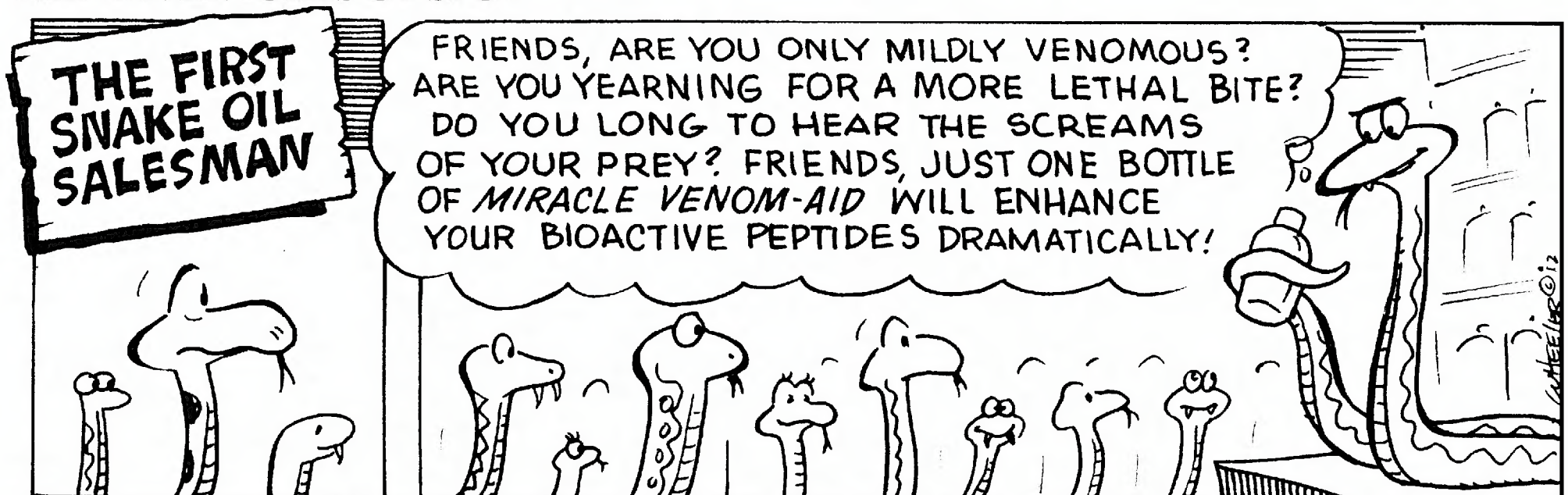
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., March 15, in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg..

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group’s Facebook page.

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